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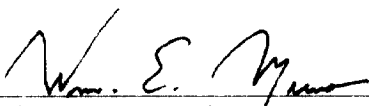
FIVE YEAR REVIEW REPORT

BURROWS SUPERFUND SITE

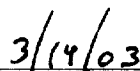
**HARTFORD,
MICHIGAN**

Pursuant to CERCLA

**Prepared by:
United States Environmental Protection Agency
Region 5
Chicago, Illinois**



William E. Muno, Director
Superfund Division, Region 5



Date

**FIVE YEAR REVIEW REPORT
EXECUTIVE SUMMARY
MARCH, 2003**

BURROWS SUPERFUND SITE

**HARTFORD,
MICHIGAN**

The completion of the current five year review confirms that the Burrows Superfund Site remains protective of human health and the environment. The source area and groundwater remedies selected in the 1986 Burrows Site ROD and 1991 ESD have been implemented under the 1990 RD/RA Consent Decree and 1992 Amended Consent Decree. This is the second five year review for the Burrows Site. The first five year review was completed and signed in March 1998. Recommendations during the 1998 review included additional groundwater sampling to determine that groundwater standards under the Site Consent Decrees, as amended, were being met.

The final Burrows Site groundwater sampling event related to the Consent Decrees involving 31 monitoring wells and three residential wells was completed in November 1998. All reported results were below the groundwater cleanup standards for dissolved chromium, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc. At the time, MDEQ requested gathering additional Site sampling data for a comprehensive analysis, concerned about groundwater meeting all Michigan Part 201 drinking water criteria. Results indicated some inorganic parameters exceeded Part 201 criteria in certain sample locations.

MDEQ then proposed initiating limited residential groundwater sampling for homes near the Burrows Site in 1999 in order to gather additional information. U.S. EPA later sent MDEQ a letter concurring with their residential well sampling program. MDEQ has since contacted the Van Buren-Cass District Health Department arranging for annual sampling of local residential wells, which began in 2002. MDEQ is also considering performing an additional independent Burrows Site investigation sometime in the future, based on concerns in meeting Part 201 criteria.

U.S. EPA sent out a letter in October 1999 notifying the Burrows Settling Defendants of Completion of Remedial Action under the requirements of the 1992 Amended CD. All Burrows Site monitoring wells, the groundwater extraction well, and associated Site material were removed and abandoned between January and March 2000.

Five Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Burrows Sanitation		
EPA ID (from WasteLAN): MID980410617		
Region: 5	State: MI	City/County: Hartford, Van Buren
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify) _____		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input checked="" type="checkbox"/> Operating <input type="checkbox"/> Complete		
Multiple OUs?* <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Construction completion date: 4/5/93	
Has site been put into reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
REVIEW STATUS		
Lead agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
Author name: Jeff Gore		
Author title: Remedial Project Manager	Author affiliation: U.S. EPA, Region 5	
Review period:** 10/31/02 to March, 2003		
Date(s) of site inspection: Nov. 20, 2002		
Type of review: <div style="text-align: right; margin-top: 10px;"> <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe lead <input type="checkbox"/> Regional Discretion </div>		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <input type="checkbox"/> Actual RA Onsite Construction at OU #____ <input type="checkbox"/> Actual RA Start at OU# 1____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify) _____		
Triggering action date (from WasteLAN): 3/17/1998		
Due date (five years after triggering action date): 3/17/2003		

* ["OU" refers to operable unit]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

**U.S. Environmental Protection Agency
Region 5
Five Year Review
Burrows Superfund Site
Hartford, Michigan
March 2003**

I. Introduction

The United States Environmental Protection Agency (U.S. EPA) Region 5 has conducted a five year review of the remedial actions implemented at the Burrows Superfund Site in Hartford, Michigan. The review was conducted between October 2002 and March 2003. This report documents the results of the five year review. The purpose of five year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the five year review reports. In addition, five year review reports identify issues found during the review, if any, and make recommendations to address them.

This review is required by policy. U.S. EPA performs policy reviews on remedies that restrict site use in the short-term, but that will take more than five years to achieve remedial cleanup goals, as well as allow for unlimited use and unrestricted exposure.

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five year review for the Burrows Superfund Site. The first five year review was completed on March 17, 1998. The date for the current five year review is triggered by the completion of the March 1998 review. Both reviews are based on the remedial response action construction completion date which was April 5, 1993.

II. Site Chronology

Table 1 lists the chronology of events for the Burrows Superfund Site.

Table 1: Chronology of Site Events

Date	Event
1982	Initial discovery of problem

1983	Proposed for NPL listing
1984	NPL final listing
1984	Surface soil removal
1985	Remedial Investigation/FS initiated
1986	Remedial Investigation/FS complete
1986	ROD signed
1988	Remedial Action Start
1990	RD/RA consent decree
1991	ESD published
1992	Amended RD/RA consent decree
1993	Remedy construction completion
1998	First Five Year Review
1999	Completion & close-out of 1992 consent decree
2000	Abandonment & removal of Site wells
2002	MDEQ starts annual residential well sampling

III. Background

A. Physical Characteristics

The Burrows Site comprises approximately 10 acres. The Site is located on 54th Avenue in Hartford Township, Van Buren County, Michigan (figure 1). There are approximately 150 people living in thirteen permanent residences and a trailer park located within a 3/4 mile radius of the Site. The homes obtain water from private wells that vary in depth from 45 to 100 feet.

B. Land and Resource Use

The Burrows Site lies in a heavily wooded area along 54th Avenue. There are two wetland areas, the East Wetland and the Northwest Wetland, along the eastern and northwestern edges of the Site. The Northwest Wetland was artificially created by the construction of an earthen dam. The wetland areas are interconnected and drained by a drainage canal known as the Doyle Drain which intermittently flows along the northern perimeter of the Site. When active, the Doyle

Drain outflow enters into the Paw Paw River about 3/4 mile to the southwest of the Site.

C. History of Contamination

The facility consisted of a Spill Area located at the northwest area of the Site, two Washout Areas located in the northeast portion of the Site, an area called the Cyanide Trail located in the south central and southeast portion of the Site, and six unlined pits located in the central part of the Site (figure 2). Metal hydroxide wastes were deposited in the pits when the facility was in operation between 1970 and 1977. The sludge contained: chromium, nickel, cyanide, copper, zinc, lead, and arsenic.

D. Initial Response

In July 1984, as part of a removal action, sludge and contaminated soils were removed from the previously identified areas by a group of Potentially Responsible Parties (PRPs). U.S. EPA performed the Remedial Investigation/Feasibility Study (RI/FS) from August 1985 through August 1986, after the PRPs declined to perform the study. The Record of Decision for the Site was signed in September 1986. The remedial action at the Site was divided into two phases. The first phase was source removal and the second one was groundwater remediation. Phase one of the remedial action was performed by U.S. EPA. Two of the PRPs entered into a Consent Decree with U.S. EPA and agreed to perform a groundwater investigation and remediation of contaminated groundwater at the Site. This initial Consent Decree for the cleanup was entered by the Court on December 12, 1990.

E. Basis for Taking Action

Remedial planning began as the Burrows Superfund Site was proposed for the National Priorities List in September 1983. The Site became a final NPL listing in September 1984.

A Remedial Investigation/Feasibility Study was performed from August, 1985 through August, 1986. The findings of the RI/FS indicated the following:

SURFACE AND SUBSURFACE SOILS: The excavated areas during the removal action showed some levels of chromium, copper, lead, nickel, zinc, and cyanide, but the Endangerment Assessment concluded that a health risk from direct contact or ingestion of soil from these areas did not exist. During the course of data collection, a previously unidentified spill area was observed. The Endangerment Assessment concluded that this area did pose a health risk from direct contact or soil ingestion.

SURFACE WATER AND SEDIMENTS: There was heavy vegetation stress on the Northwest Wetland adjacent to the Site due to the increased water depth related to an earthen dam which obstructed the natural drainage of the Wetland.

GROUNDWATER: The Safe Drinking Water Act Primary and Secondary Maximum Contaminant Levels (MCLs) were exceeded in three site wells. The contaminants above MCLs were chromium and zinc; lead was above the recommended MCL. No elevated levels of indicator chemicals were found in the downgradient residential wells when compared to the upgradient well concentrations. The Endangerment Assessment identified human ingestion of contaminated groundwater as a potential route of exposure.

U.S. EPA and the Michigan Department of Natural Resources (MDNR) prepared a ROD in September of 1986 that outlined a soil removal and a groundwater purge and treatment system. An Explanation of Significant Difference (ESD) was completed in May 1991 that revised the groundwater purge and treatment system in recognition of a much smaller plume size and completed soil remedy. As a result, a second amended Consent Decree was written. The initial and amended Consent Decrees were entered in court in December 1990 and July 1992 respectively.

IV. Remedial Actions

A. Remedy Selection

The response actions outlined for the Burrows Site in the September 1986 ROD included the following remedial response:

- * Remove and treat approximately 250 cubic yards of metal hydroxide sludge from the spill area and the Northwest Wetland. Dispose the treated waste at an off-site RCRA facility in compliance with U.S. EPA policy.
- * Drain the artificial Northwest Wetland.
- * Purge and treat on-site the contaminated groundwater, using chemical precipitation as the treatment method.

Additional groundwater investigations were undertaken by the PRPs prior to entry of the 1990 Consent Decree under authorization of a Stipulation and Agreed Order signed September, 1989. Based on these groundwater sampling results, the ESD of May 1991 and subsequent Consent Decree entered July 1992 were written to amend the remedy. An on-site chemical precipitation treatment system was not necessary to attain the groundwater cleanup levels outlined within the original Consent Decree and ROD. The remedy listed in the ESD and amended CD consisted of:

- * A scaled down groundwater treatment system with one extraction well and on-site storage.
- * Off-site transportation and treatment of extracted groundwater at a POTW plant.

B. Remedy Implementation

The first phase of the Remedial Action (RA) was completed in May, 1989. During this first phase of the RA, 320 cubic yards of contaminated surface soils and sediments from the spill area were excavated and transported off-site to a RCRA facility. The blockage in the Northwest Wetland was removed and re-channelled. As a result, only the groundwater remained to be treated.

The additional groundwater investigations undertaken by the PRPs, under the authorization of a Stipulation and Agreed Order signed September 1989, involved the installation of five new PVC monitoring well nests on the Site. Three rounds of additional groundwater sampling were completed at the Burrows Site, one each in March, June, and September of 1990. Groundwater samples were analyzed for the chemicals of concern, which included zinc, chromium, copper, lead, and nickel. Analytical results for the three rounds of groundwater sampling determined that all chemicals of concern were below the groundwater cleanup standards except for a slight exceedence of dissolved chromium.

The groundwater extraction well, storage tank, and associated equipment for extracting groundwater and removing it for off-site treatment was constructed at the Site between July and September 1991.

Remedial Action construction activities officially concluded in April of 1993 with the completion and signing of the Preliminary Close-Out Report for the Burrows Site.

C. Systems Operations/ Operations and Maintenance

Groundwater extraction began at the Burrows Site in August of 1992 and continued until December 1993. During that period a total of 2,600,000 gallons of groundwater were extracted and taken for off-site treatment and disposal to the Kalamazoo, Michigan Water Reclamation Plant. Sampling activities showed that dissolved chromium was the only contaminant to show an exceedence during groundwater extraction and off-site treatment at the Site.

Groundwater remedial sampling requirements under the Consent Decrees at the Burrows Site include the potential contaminants dissolved chromium, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc. Since remedial action groundwater sampling was initiated in 1990, all analysis results were below the cleanup standards with the exception of dissolved chromium. As a result, groundwater remedial action centered on meeting the 100 ppb MCL cleanup standard for dissolved chromium.

Results from August and December, 1997 sampling events indicated that the cleanup standard for dissolved chromium was being met at the Site. The final sampling event was completed at the Site monitoring wells in November 1998. Thirty-One monitoring wells and three residential wells were sampled and analyzed. All reported results were below the groundwater cleanup

standards for the potential contaminants of dissolved chromium, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc .

The Michigan Department of Environmental Quality (MDEQ) requested to collect split samples of the November 1998 final sampling event, and had them analyzed for a variety of additional compounds including volatile organic compounds (VOCs), cyanide, and total as well as dissolved metals. The parameters of aluminum, barium, boron, iron and manganese exceeded MDEQ Part 201 (as specified in the Natural Resources and Environmental Protection Act, as amended) drinking water criteria in at least one of the 31 monitoring wells. Six samples for total lead and one sample for total zinc exceeded MDEQ criteria. One total chromium sample and duplicate was at and just above MDEQ criteria respectively. Cyanide was not detected in any of the wells sampled. Trichloroethene (TCE) was the only VOC detected during the sampling event in two of the monitoring wells, with results including duplicates below drinking water criteria.

V. Progress Since Last Five Year Review

This is the second five year review for the Burrows Site. The first five year review report was completed and signed in March 1998. Recommendations during the 1998 review included an additional groundwater sampling event to determine that groundwater standards were met for dissolved chromium, as well as other contaminants of concern which were dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc. If this occurred, then Superfund Site close-out and National Priorities List deletion were to be recommended by U.S. EPA.

The final groundwater sampling event involving 31 monitoring wells and three residential wells was completed in November 1998. All reported results were below groundwater cleanup standards for dissolved chromium, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc.

MDEQ's request for obtaining additional groundwater monitoring data, in their concern for meeting the state's Part 201 drinking water criteria, resulted in MDEQ gathering their own data during the final November 1998 Burrows Superfund Site Consent Decree sampling event. MDEQ also conducted an independent geoprobe investigation in May 1999 that included 25 samples from seven geoprobe borings. This May 1999 investigation found that there were groundwater concentrations of aluminum, boron, iron and manganese above Michigan Part 201 drinking water criteria. VOC analysis found one sample detecting vinyl chloride at the drinking water standard of 2 micrograms per liter. TCE and chloromethane were the only other VOCs detected, both below drinking water criteria. Based on MDEQ's independent sampling results, MDEQ mentioned interest in possibly performing an additional future Site investigation based on different groundwater flow assumptions.

MDEQ also proposed initiating limited residential groundwater sampling for homes near the Burrows Site in 1999. U.S. EPA then sent MDEQ a letter concurring with their residential well

sampling program. MDEQ has since contacted the Van Buren-Cass District Health Department to arrange for sampling of local residential wells beginning in 2002, including a comprehensive list of compounds.

U.S. EPA sent out a letter in October 1999 notifying the Burrows Settling Defendants of Completion of Remedial Action under the requirements of the 1992 Amended CD.

All Burrows Site monitoring wells, the groundwater extraction well, and associated Site material were removed and abandoned between January and March 2000.

VI. Five Year Review Process

A. Administrative Components

The Burrows Site five year review was prepared by Jeff Gore, U.S. EPA Remedial Project Manager for the Site. Sally Beebe, State Project Manager with the Michigan Department of Environmental Quality (MDEQ), also assisted with the review. The five year review consisted of a Site inspection and review of relevant documents.

B. Community Involvement

The completed report will be available in the Site information repository and the U.S. EPA website for public view. An advertisement notice announcing the five year review process was placed for public viewing in the local newspaper.

Community relations ongoing at the Burrows Site include the residential sampling program currently being carried out by MDEQ and the Van Buren-Cass District Health Department. In November 1999, MDEQ sent a letter to the residents and owners of the Burrows Site property recommending that they sample any newly installed water well on the property for groundwater quality evaluation. An annual residential well sampling for residents living near the Site was initiated in 2002.

C. Document Review

Documents reviewed in preparation of this five year review report include the following:

- 1) Five Year Review Report, Burrows Site, 3/17/98
- 2) Amended RD/RA Consent Decree, Burrows Site, July 1992
- 3) Explanation of Significant Difference, Burrows Site, May 1991

4) RD/RA Consent Decree, Burrows Site, December 1990

5) Record of Decision, Burrows Site, September 1986

6) Burrows Site file, and operation & maintenance documents

The following standards were identified as applicable or relevant and appropriate requirements (ARARs) in the ROD and previous five year review for the Site, and were reviewed for changes that could affect protectiveness:

- Safe Drinking Water Act Maximum Contaminant Levels (MCLs);
- Resource Conservation and Recovery Act (RCRA) hazardous and solid waste disposing and storage regulations;
- Clean Water Act (CWA)
- Department of Transportation (DOT) hazardous materials rules
- Michigan Environmental Response Act for soil and groundwater;
- Michigan Solid Waste Management and Air Pollution Acts;

D. Data Review

The final Burrows Consent Decree groundwater sampling event was completed at the Site monitoring wells in November 1998. Thirty-One monitoring wells and three residential wells were sampled and analyzed. All reported results were below the groundwater cleanup standards for the compounds of concern, which included dissolved chromium, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc.

- Compliance with Groundwater Cleanup Standards for Dissolved Chromium (100 ug/l), Dissolved Copper (1000 ug/l), Dissolved Lead (20 ug/l), Dissolved Nickel (150 ug/l) and Dissolved Zinc (5000 ug/l) were met for the Site.
- As a result, all requirements under the 1992 Consent Decree, as amended, were met for remedial action completion.

The Michigan Department of Environmental Quality (MDEQ) requested to collect split samples of the November 1998 final sampling event, and had them analyzed for a variety of additional compounds including volatile organic compounds (VOCs), cyanide, and total as well as dissolved metals. The parameters of aluminum, barium, boron, iron and manganese exceeded MDEQ Part 201 (as specified in the Natural Resources and Environmental Protection Act, as

amended) drinking water criteria in at least one of the 31 monitoring wells. Six samples for total lead and one sample for total zinc exceeded MDEQ criteria. One total chromium sample and duplicate was at and just above MDEQ criteria respectively. Cyanide was not detected in any of the wells sampled. Trichloroethene (TCE) was the only VOC detected during the sampling event in two of the monitoring wells, with results including duplicates below drinking water criteria.

MDEQ also conducted an independent geoprobe investigation in May 1999 that included 25 samples from seven geoprobe borings. This May 1999 investigation found that there were groundwater concentrations of aluminum, boron, iron and manganese above Michigan Part 201 drinking water criteria. VOC analysis found one sample detecting vinyl chloride at the drinking water standard of 2 micrograms per liter. TCE and chloromethane were the only other VOCs detected, both below drinking water criteria. Based on MDEQ's independent sampling results, MDEQ mentioned interest in possibly performing an additional future Site investigation based on different groundwater flow assumptions.

MDEQ and the Van Buren-Cass District Health Department began annual residential well sampling in 2002 for homes near the Burrows Site. The first round of sampling was completed in January 2002 by the health department and included two residential wells. MDEQ has specified five residential wells for sampling and will consider taking over the sampling program if the health department is unable to complete the sampling program.

- Results from the January 2002 sampling event showed non-detection of all the compounds listed, for the two residential wells sampled.
- MDEQ plans future residential sampling events at five locations, including an expanded list of compounds that are analyzed for a full list of organic and inorganic parameters.

E. Site Inspection

The Burrows Site has been visited a number of times by the current remedial project manager since the last five year review. The most recent visit was performed on November 20, 2002, in order to inspect the Site for this five year review. Jeff Gore of U.S. EPA and Sally Beebe of MDEQ were present during the November inspection.

The Site was found to be in good condition during the inspection and free of debris. The graded areas where the former storage tank and extraction well had been located showed brush growing in most areas. Grass and brush had also formed on most of the Site where final surface grading took place in 2000. There were small patches in the graded area where brush was still forming, and not yet fully formed. The areas where sumps and monitoring wells were located continued to be solidly covered with soil, and brush was forming over those surfaces.

A walk around the Site showed no signs of any vandalism or other disturbances. At the request of the property owners, there is no security fence at the property. There were no new issues

identified on the Site property during the inspection.

The future schedule for annual residential sampling by MDEQ and the Van Buren-Cass District Health Department was discussed during the inspection.

VII. Assessment

The following questions address the protection of human health and the environment of the remedy at the Burrows Superfund Site.

Question A: Is the remedy functioning as intended by the decision documents?

- **Implementation of Institutional Controls and Other Measures:** The 1986 ROD and 1991 ESD required the implementation of soil removal, sludge removal, and groundwater extraction & treatment in order to have unlimited access to the Site property and groundwater. Site access and use by the property owners is now unrestricted, based on completion of the remedial action requirements under the 1992 CD, as amended. However, MDEQ has determined based on their independent sampling that groundwater use should be restricted based on exceedences in certain Michigan Part 201 drinking water criteria. MDEQ has requested to perform continued annual groundwater sampling at nearby residential wells, in order to collect additional information. This sampling began in 2002. They have also showed interest in the possibility of a future independent Site investigation based on their concern of meeting Michigan Part 201 criteria.
- **Remedial Action Performance:** The remedial action components included in the Burrows 1986 ROD and 1991 ESD have been completed. The removal and off-site disposal of surface soils and sediments, and the Northwest Wetland reshaping was completed in 1989. Groundwater extraction and off-site treatment was completed in 1993. Groundwater compliance monitoring at Site monitoring wells was completed in 1998. U.S. EPA sent out a letter in 1999 stating that the Burrows Settling Defendants had completed all remedial action requirements under the 1992 Consent Decree, as amended. MDEQ began an annual residential well monitoring program in 2002 to collect additional groundwater data.
- **System Operations/O&M:** System operations historically included the operation of a groundwater extraction system and off-site treatment from August 1992 through December 1993. Monitoring of Site groundwater wells continued until November 1998, when it was confirmed that compliance standards under the ROD, ESD and CDs were met. The Site extraction well and monitoring wells were removed and abandoned in 2000. MDEQ began annual residential well sampling in 2002.

- **Cost of System Operations/O&M:** Current annual O&M costs at the Burrows Site are primarily contributed to MDEQ residential well sampling and project review. 2002 estimated costs are \$1400 for the sampling of five residential wells. Other costs involve U.S. EPA and MDEQ project manager time and travel related to the Burrows Site. Depending on the number of residential wells sampled and project review time, total annual O&M costs are estimated to be between \$3000 and \$10,000 per year.
- **Opportunities for Optimization:** Minimizing any excess residential well sampling costs and ongoing Site activities would provide the greatest opportunity for optimization at the Burrows Site.
- **Early Indicators of Potential Remedy Issues:** There have been no indicators of significant potential remedy issues in relation to the Burrows Site Consent Decree since the last five year review in 1998. The Site Consent Decree has since been closed out. U.S. EPA now views the Burrows Site as eligible for Superfund Site deletion. However, MDEQ has strongly opposed concurring with approval for Superfund Site deletion based on Michigan Part 201 criteria, and the state may have interest in an additional future independent Site investigation based on different groundwater flow assumptions. MDEQ is currently performing an annual residential well sampling program through the Van Buren-Cass District Health Department.

Question B: Are the assumptions used at the time of remedy selection still valid?

- **Changes in Standards and To Be Considered:** A 1996 Order Modifying the Amended Consent Decree was signed to amend the revised Safe Water Drinking Act maximum contaminant level (MCL) for chromium to 100 micrograms per liter. The revised chromium MCL has been enforced at the Burrows Site since that time.
- **Changes in Exposure Pathways:** No new exposure pathways have been discovered at the Burrows Site since the last five year review in 1998.
- **Changes in Toxicity and Other Contaminant Characteristics:** Toxicity and other factors for contaminants of concern have not changed since the last five year review in 1998.
- **Changes in Risk Assessment Methodologies:** Risk assessment methodologies used at the Burrows Site since the last five year review in 1998 have not changed, and do not call into question the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the

protectiveness of the remedy?

MDEQ has shown potential interest in performing a future independent additional Site investigation based on their concern of meeting Michigan Part 201 drinking water criteria.

VIII. Issues

Issues that were discovered during the five year review process and the Burrows Site inspection are noted in Table 2.

Table 2: Identified Issues

Five Year Review Issues	Currently Affects Protectiveness (Y/N)
Site monitoring well and extraction well removal and abandonment in 2000.	N
MDEQ annual residential well sampling	N
MDEQ interest in additional data based on Part 201	N
Issues Noted at Site Inspection	
MDEQ coordination with Van Buren-Cass Health Department regarding annual residential well sampling.	N
A few sparse vegetation spots due to Site grading.	N

IX. Recommendations and Follow-up Actions

The following recommendations and follow-up actions address the issues which were identified during the five year review and Site inspection:

- 1) MDEQ should continue to coordinate annual groundwater residential well sampling with the Van Buren-Cass District Health Department. Annual sampling began in 2002 and is scheduled again in 2003.
- 2) MDEQ should keep U.S. EPA informed regarding any progress of interest in performing an additional independent Site investigation at the Burrows Site.

- 3) The few sparse vegetation spots on the Burrows Site property due to Site grading should be allowed to fill in naturally over time.

The following issue noted during the five year review and Site inspection period has been identified, and has been corrected or is in the process of being corrected.

- 4) Removal and abandonment of Burrows Site monitoring wells, extraction well, associated materials, and Site grading was completed between January and March 2000. The five year review Site inspection in November 2002 confirmed that the abandonment was complete.

Table 3 : Recommendations and Follow-up Actions

New Five Year Review Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Follow-up Action: Affects Protective ness (Y/N)
Abandoned and removed Site wells	Periodic Site inspections to view vegetation	EPA/MDEQ	EPA/MDEQ	Done/ as available	N
Annual residential well samples	Contact local residents	MDEQ/EPA	EPA/MDEQ	2002 Annual	N
Ongoing Site Issues					
Van Buren-Cass District Health Dept.	Communicate contact prior to annual sampling	Van Buren-Cass/ MDEQ	MDEQ/EPA	2002/ annual	N
MDEQ Site investigation per Part 201	Communicate with USEPA	MDEQ	MDEQ/EPA	Open	N
Vegetation of Site	None	N/A	EPA/MDEQ	Ongoing	N

X. Protectiveness Statements

Completion of the current five year review confirms that the Burrows Superfund Site is protective of human health and the environment, and there are no known exposure pathways that could result in unacceptable health risks. The components of the remedy selected in the 1986 Burrows Site ROD and 1991 ESD have been implemented under the 1990 Consent Decree, 1992 Amended Consent Degree and 1996 Order Modifying the Consent Decree.

Contaminated surface soils and sediments from the spill area were excavated and transported off-site to a RCRA facility. The blockage in the Northwest Wetland was removed and re-channeled. The extraction well, storage tank, and associated equipment effectively extracted a total of 2,600,000 gallons of groundwater which was taken for off-site treatment and disposal to the Kalamazoo, Michigan Water Reclamation Plant. Ongoing sampling activities showed that all required remediation standards under the Consent Decrees were met.

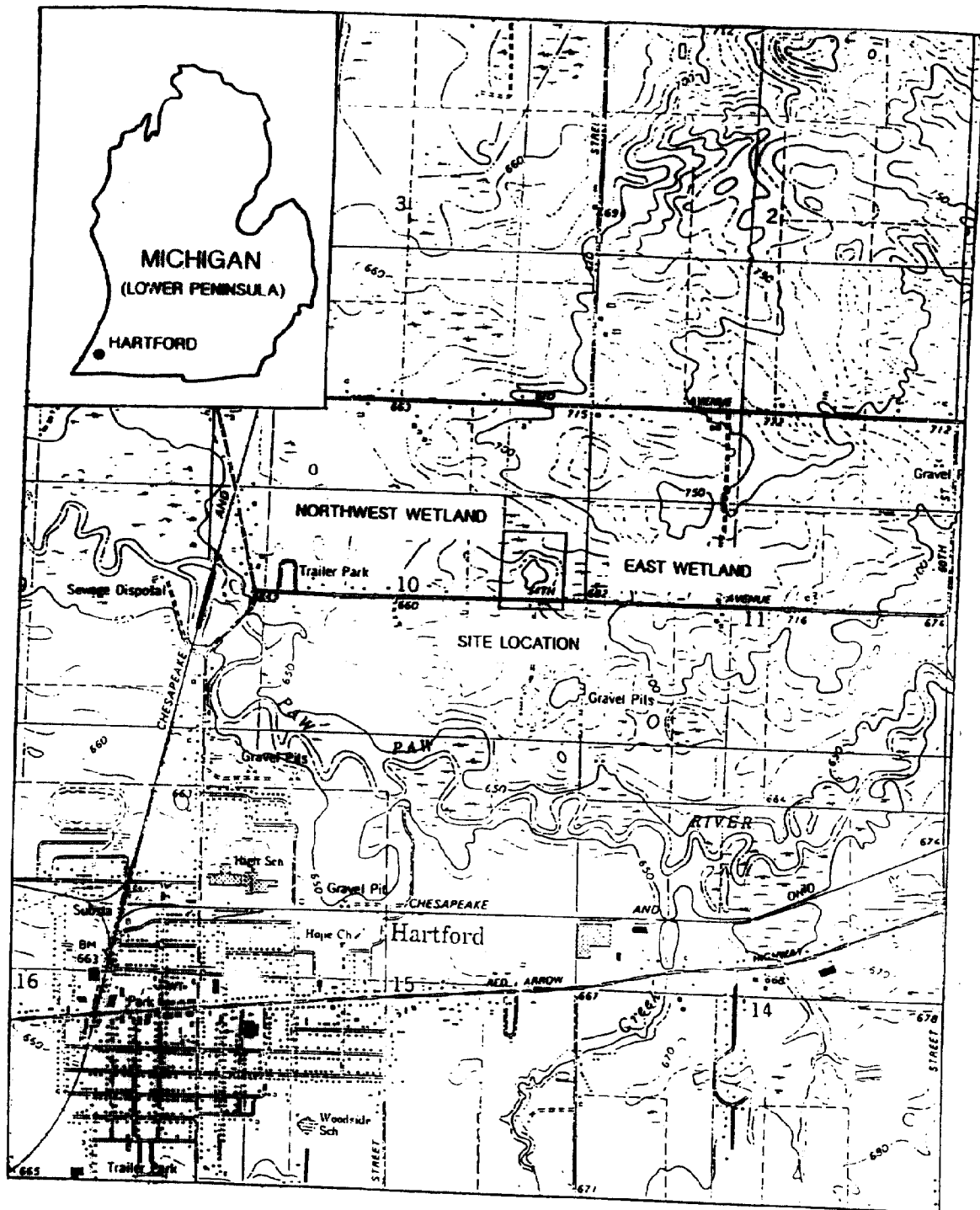
All Burrows Site monitoring wells, the groundwater extraction well, and associated Site material were removed and abandoned between January and March 2000.

MDEQ has collected additional groundwater monitoring data at the Burrows Site in their concern for meeting the Michigan Part 201 drinking water criteria. Certain sample results have exceeded Part 201 criteria for aluminum, barium, boron, iron, manganese, and zinc. One sample for total chromium and one geoprobe sample for vinyl chloride were at the drinking water criteria. Based on this data and concerns over historical groundwater information, MDEQ is potentially interested in gathering additional Site information concerning protectiveness. U.S. EPA views these interests by MDEQ as beyond the enforcement action requirements of the Burrows Superfund Site Consent Decrees, as amended.

MDEQ requested that annual residential well sampling begin in 2002 to gather additional groundwater information. The Van Buren-Cass District Health Department is currently performing annual residential groundwater sampling.

XI. Next Review

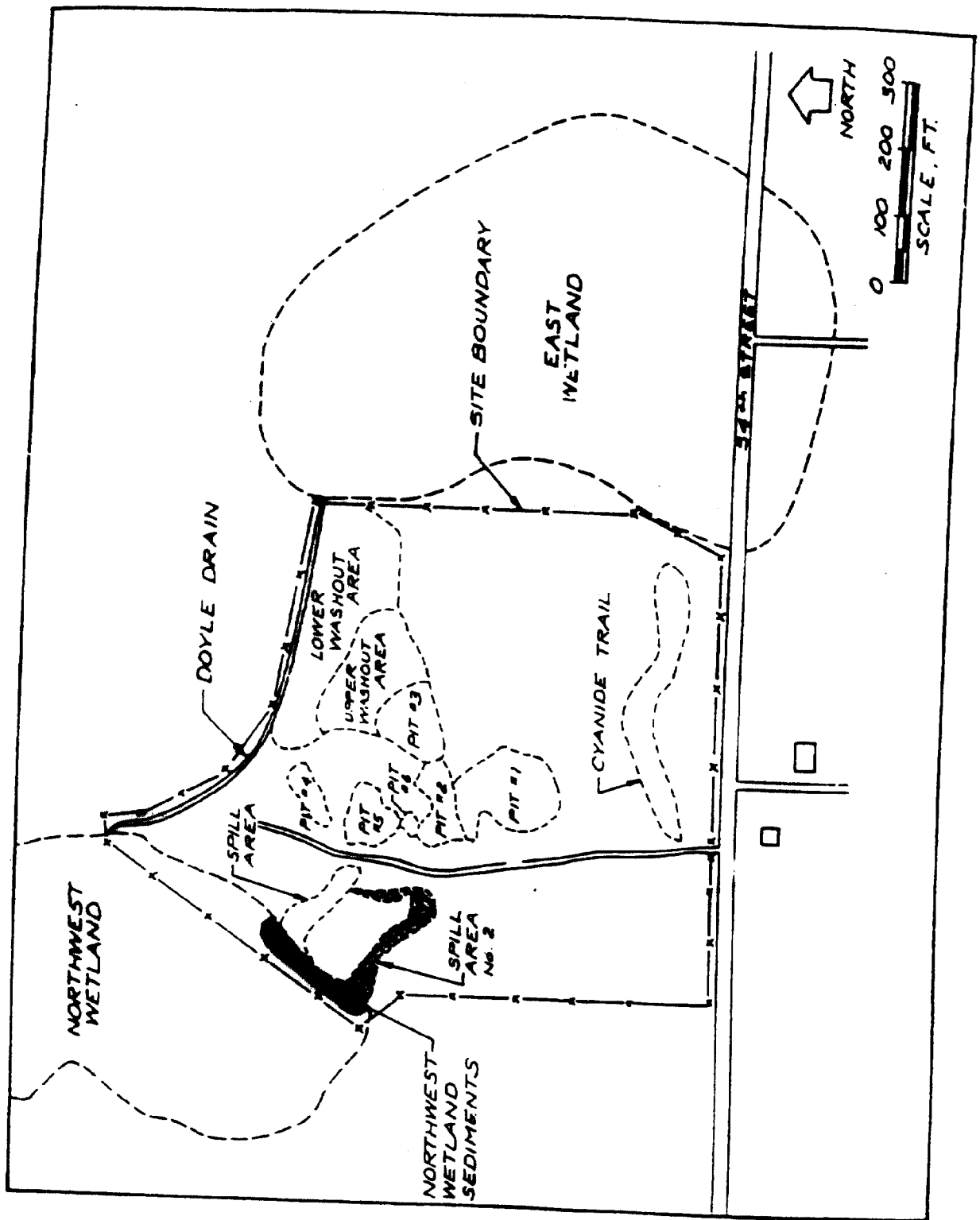
The five year review for the Burrows Superfund Site is a policy review that requires ongoing five year reviews until unlimited Site use is achieved. U.S. EPA currently views the Burrows Superfund Site as eligible for Superfund Site deletion from the National Priorities List. However, MDEQ does not concur with U.S. EPA. Based on the MDEQ sampling data collected in 1998 and 1999 which exceeded certain Michigan Part 201 criteria, the state does not believe that the Burrows Site has achieved status for unrestricted use and unlimited exposure. As a result, it is unlikely that the Burrows Site will be removed from the National Priorities List. Therefore, another five year review is scheduled to be completed by March 2008.



SITE LOCATION MAP

REF: USGS, HARTFORD, MI.
 NW/4 HARTFORD 15' QUADRANGLE
 N4207 5-W8607 5-7 5
 1981

Figure 1



SITE MAP

Figure 2

**FIVE YEAR REVIEW REPORT
LIST OF DOCUMENTS REVIEWED
MARCH, 2003**

BURROWS SUPERFUND SITE

**HARTFORD,
MICHIGAN**

- 1) Five Year Review Report, Burrows Site, March 1998.
- 2) Amended RD/RA Consent Decree, Burrows Site, July 1992
- 3) Explanation of Significant Difference, Burrows Site, May 1991.
- 4) RD/RA Consent Decree, Burrows Site, December 1990.
- 5) Record of Decision, Burrows Site, September 1986.
- 6) Burrows Site file, and operation & maintenance documents.